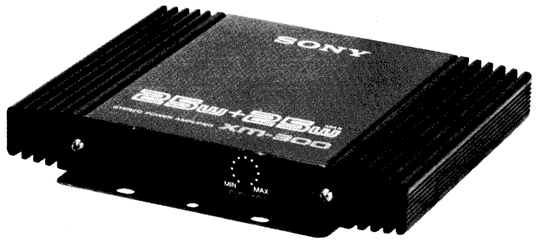
XM-300

SERVICE MANUAL

US Model
AEP Model



SPECIFICATIONS

AUDIO POWER SPECIFICATIONS
POWER OUTPUT AND TOTAL HARMONIC DISTORTION
14 watts per channel minimum continuous average power into 4 ohms, both channels driven from 30–20,000 Hz with no more than 0.8% total harmonic distortion.

OTHER SPECIFICATIONS

Circuit system	BTL system
Inputs	Auxiliary inputs (phono jacks) 2
	Remote control input (sure seal connector) 1
Outputs	Speaker outputs (sure seal connectors) 4
Speaker impedance	3.2–8 ohms
Frequency response	20–30,000 Hz ±3 dB (4 ohms, 1 W)*
Maximum power output	25 watts per channel minimum RMS at 4 ohms
Harmonic distortion	Less than 0.06% (1 kHz, 4 ohms, 1 W)
Power requirements	12 V dc car battery (negative ground)
Current drain	5.5 A (at maximum output)*
Mounting dimensions	Approx. 178 × 25 × 163 mm (w/h/d) ($7\frac{1}{8}$ × 1 × $6\frac{1}{2}$ inches)
Weight	Approx. 1 kg (2 lb 4 oz)

*Measured at 14.4 V

MICROFILM

FEATURES

- Maximum power output of 25 watts per channel.
- Low distortion of less than 0.06%.
- A remote power system automatically switches the amplifier on when a connected cassette player or tuner is turned on.

Protection circuit
This power amplifier employs a protection circuit to protect the speakers if the amplifier malfunctions. When a protection circuit activates, there will be an abrupt loss of sound from the speakers.
Particularly, when a speaker with a low input impedance (less than 3 ohms) is connected to the XM-300, the sound will be discontinued. This, however, is not a problem. If this happens, turn the volume down a little.

STEREO POWER AMPLIFIER

SONY®

AUD

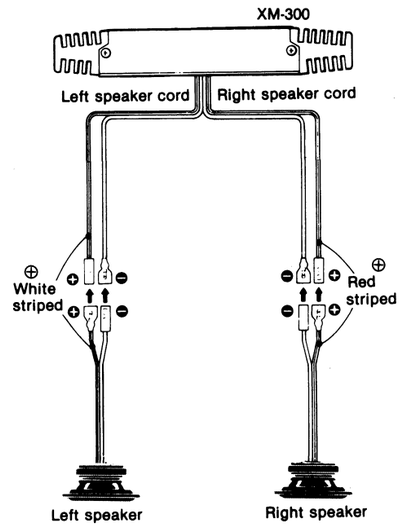
CONNECTIONS

Caution
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the red power input lead only after all other leads have been connected.
- Run all ground wires to a common ground point.

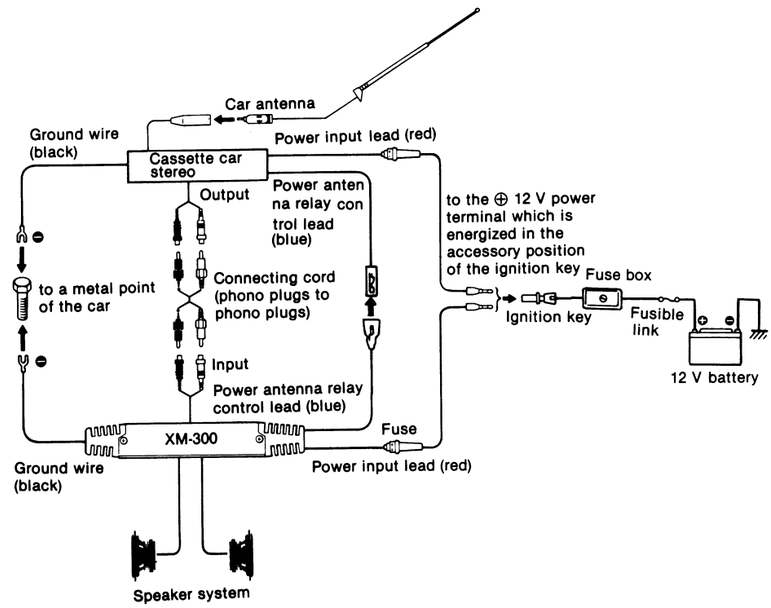
SPEAKER CONNECTION

- Since the XM-300 employs the BTL (balanced transformerless) circuit system, be sure to make speaker connections as illustrated.

If the connection is made through already existing speaker leads which have a common ⊖ lead for both right and left channels, it is possible that the amplifier and the speaker system will be damaged.
- Do not connect the ⊖ terminal of the speaker system with the car chassis, and do not connect the ⊖ terminal of the right speaker with that of the left speaker. Doing so will damage the XM-300.



CONNECTION EXAMPLE

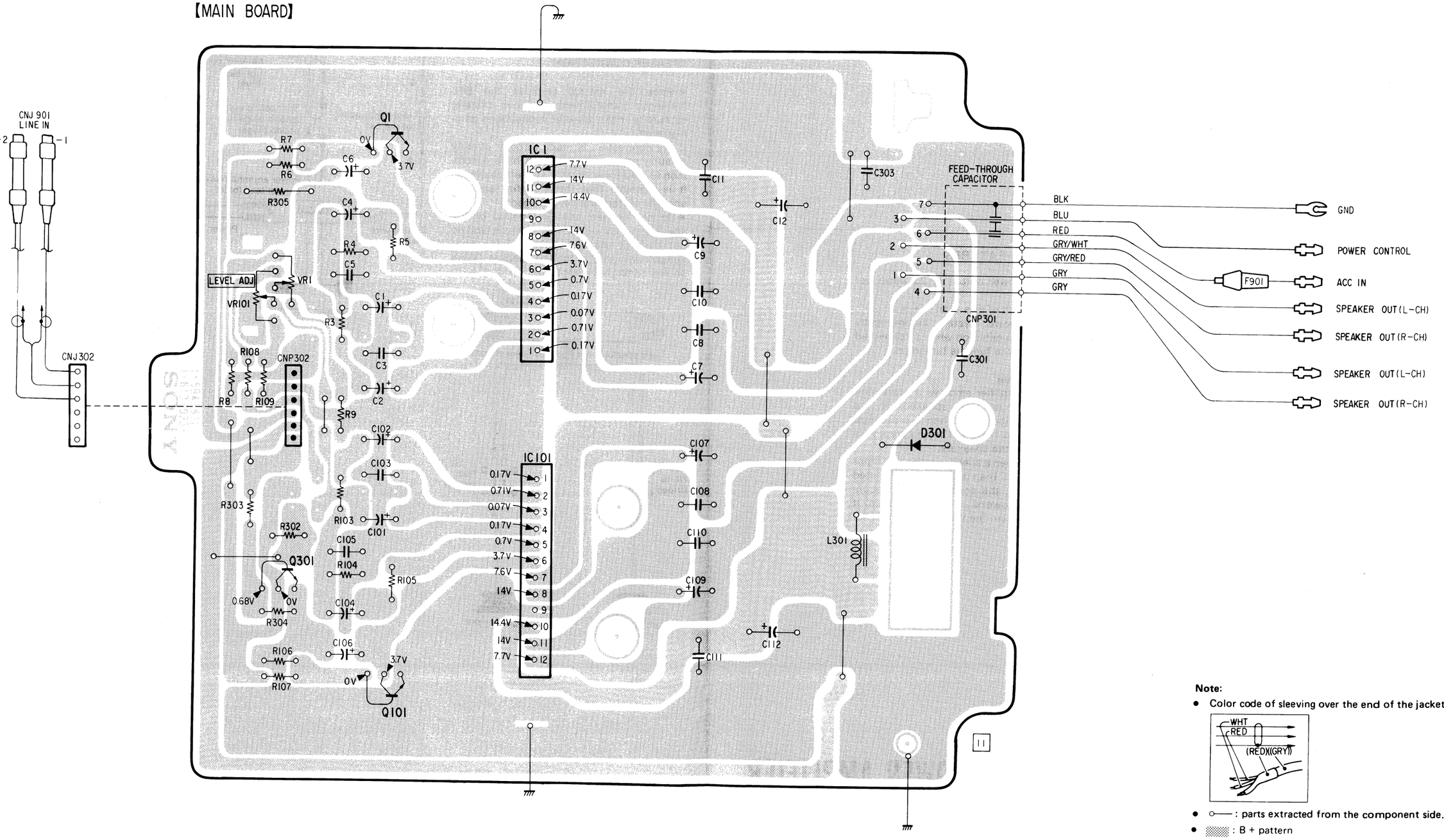


SECTION 1
DIAGRAMS

1-1. MOUNTING DIAGRAM

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	IC Q			301	I 101	IC1 IC101										IC Q
D	D										301					D

【MAIN BOARD】

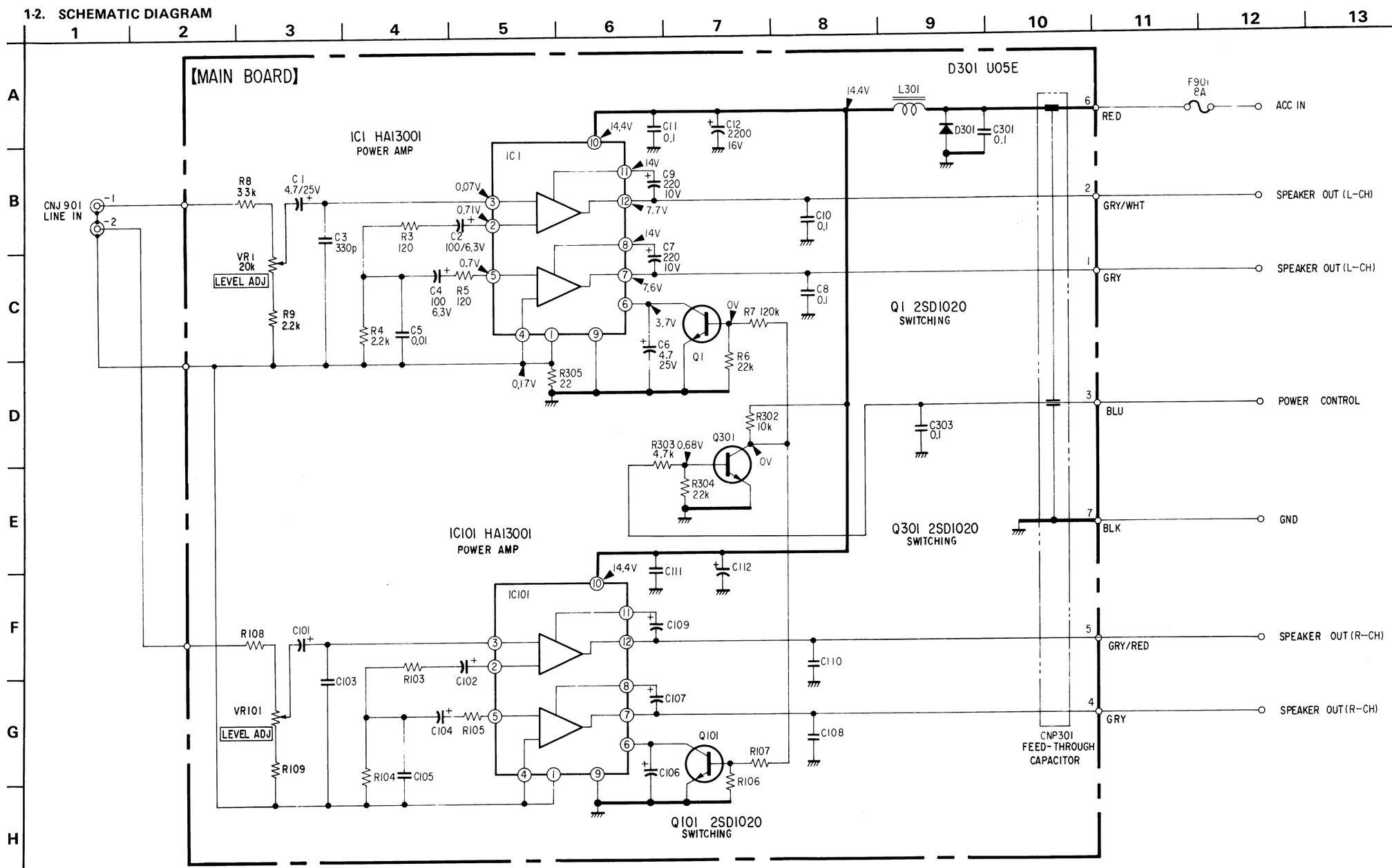


Note:

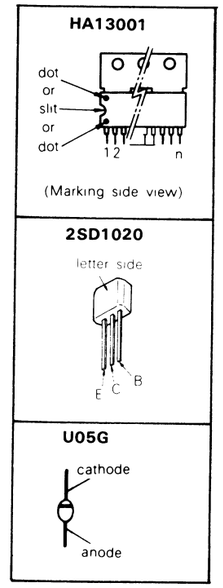
- Color code of sleeving over the end of the jacket.

- ○— : parts extracted from the component side.
- ▒▒ : B + pattern

1-2. SCHEMATIC DIAGRAM



Semiconductor Lead Layouts.

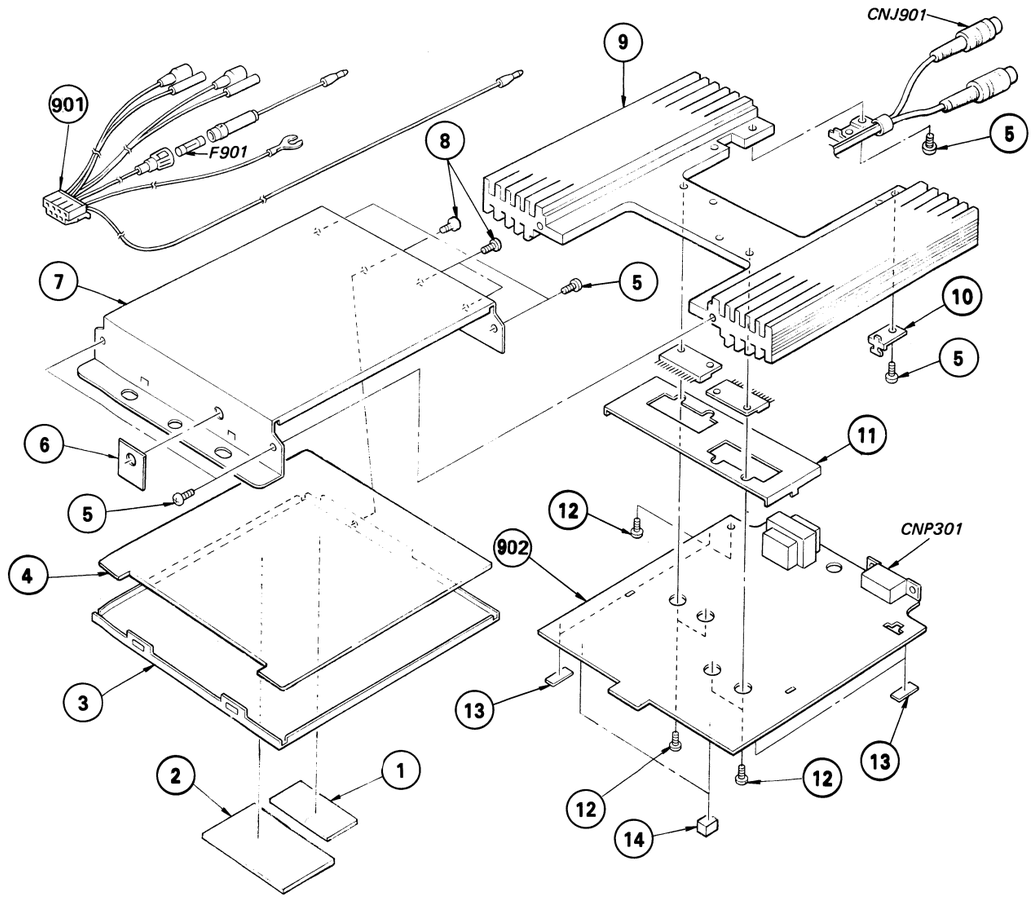


Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 100.
- ▬▬ : B+ bus.
- Power voltage is 14.4V and fed with regulated dc power supply from CNP301 (6).
  Voltages are dc with respect to ground in no-signal mode.
  Voltage variations may be noted due to normal production tolerances.

SECTION 2
EXPLODED VIEW AND PARTS LIST

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number on the remark column.



No.	Part No.	Description	REMARKS
1	*3-310-657-01	LABEL, MODEL NUMBER	
2	3-310-666-01	LABEL, CAUTION	
3	*3-310-662-01	CASE, BOTTOM	
4	*3-310-648-02	BOARD, INSULATION	
5	7-685-646-19	SCREW +BVTP 3X8 TYPE2 N-S	
6	3-310-665-01	LABEL	
7	3-310-663-11	CASE, UPPER	
8	7-682-545-09	SCREW +B 3X4	
9	*3-310-664-01	HEAT SINK	
10	*3-310-647-01	BRACKET, PC BOARD	
11	*3-310-646-01	BRACKET, POWER IC	
12	7-682-547-04	SCREW +B 3X6	
13	3-839-640-00	CUSHION	
14	9-911-841-XX	CUSHION (B)	
901	1-557-702-11	CORD (WITH CONNECTOR)	
902	*1-613-023-11	PC BOARD, MAIN	
902	*A-3260-261-A	MOUNTED PCB, MAIN	

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:µF, PF:µµF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : µH

SEMICONDUCTORS
In each case, U : µ, for example:
UA...: µA..., UPA...: µPA..., UPC...: µPC, UPD...: µPD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	1-557-702-11	CORD (WITH CONNECTOR)			
902	*1-613-023-11	PC BOARD, MAIN			
902	*A-3260-261-A	MOUNTED PCB, MAIN			
C1	1-123-616-00	ELECT	4.7MF	20%	25V
C2	1-123-661-00	ELECT	100MF	20%	6.3V
C3	1-102-820-00	CERAMIC	330PF	5%	50V
C4	1-123-661-00	ELECT	100MF	20%	6.3V
C5	1-130-483-00	MYLAR	0.01MF	5%	50V
C6	1-123-616-00	ELECT	4.7MF	20%	25V
C7	1-123-308-00	ELECT	220MF	20%	10V
C8	1-130-495-00	MYLAR	0.1MF	5%	50V
C9	1-123-308-00	ELECT	220MF	20%	10V
C10	1-130-495-00	MYLAR	0.1MF	5%	50V
C11	1-130-495-00	MYLAR	0.1MF	5%	50V
C12	1-123-566-00	ELECT	2200MF	20%	16V
C101	1-123-616-00	ELECT	4.7MF	20%	25V
C102	1-123-661-00	ELECT	100MF	20%	6.3V
C103	1-102-820-00	CERAMIC	330PF	5%	50V
C104	1-123-661-00	ELECT	100MF	20%	6.3V
C105	1-130-483-00	MYLAR	0.01MF	5%	50V
C106	1-123-616-00	ELECT	4.7MF	20%	25V
C107	1-123-308-00	ELECT	220MF	20%	10V
C108	1-130-495-00	MYLAR	0.1MF	5%	50V
C109	1-123-308-00	ELECT	220MF	20%	10V
C110	1-130-495-00	MYLAR	0.1MF	5%	50V
C111	1-130-495-00	MYLAR	0.1MF	5%	50V
C112	1-123-566-00	ELECT	2200MF	20%	16V
C301	1-130-495-00	MYLAR	0.1MF	5%	50V
C303	1-130-495-00	MYLAR	0.1MF	5%	50V
CNJ901	1-557-703-11	CORD (WITH CONNECTOR)			
CNP301	1-564-590-11	CONNECTOR (WITH FEED-THROUGH CAPACITOR)			
CNP302*	1-560-469-00	PIN, CONNECTOR 6P			
D301	8-719-911-55	DIODE U05G			
F901	1-532-508-00	FUSE, GLASS TUBE (8A)			
IC1	8-759-300-34	IC HA13001			
IC101	8-759-300-34	IC HA13001			
Q1	8-729-102-03	TRANSISTOR 2SD1020			
Q101	8-729-102-03	TRANSISTOR 2SD1020			
Q301	8-729-102-03	TRANSISTOR 2SD1020			
L301	1-421-369-00	COIL, CHOKE			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R3	1-247-809-00	CARBON	120	5%	1/6W
R4	1-247-839-00	CARBON	2.2K	5%	1/6W
R5	1-247-809-00	CARBON	120	5%	1/6W
R6	1-247-863-00	CARBON	22K	5%	1/6W
R7	1-247-881-00	CARBON	120K	5%	1/6W
R8	1-247-867-00	CARBON	33K	5%	1/6W
R9	1-247-839-00	CARBON	2.2K	5%	1/6W
R103	1-247-809-00	CARBON	120	5%	1/6W
R104	1-247-839-00	CARBON	2.2K	5%	1/6W
R105	1-247-809-00	CARBON	120	5%	1/6W
R106	1-247-863-00	CARBON	22K	5%	1/6W
R107	1-247-881-00	CARBON	120K	5%	1/6W
R108	1-247-867-00	CARBON	33K	5%	1/6W
R109	1-247-839-00	CARBON	2.2K	5%	1/6W
R302	1-247-855-00	CARBON	10K	5%	1/6W
R303	1-247-847-00	CARBON	4.7K	5%	1/6W
R304	1-247-863-00	CARBON	22K	5%	1/6W
R305	1-247-091-00	CARBON	22	5%	1/4W
VR1	1-230-640-11	RES, VAR, CARBON 20K/20K (LEVEL ADJ)			
VR101	1-230-640-11	RES, VAR, CARBON 20K/20K (LEVEL ADJ)			

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-532-508-00	FUSE, GLASS TUBE (8A)
1-556-167-00	CORD, CONNECTION
1-557-702-11	CORD (WITH CONNECTOR)
3-302-126-00	SCREW, TAPPING (DIA. 5X20)
3-310-656-01	TAPE, MAGIC
3-310-658-01	TAPE (B), MAGIC
3-322-437-01	(US)...CUCHION (E)
3-323-207-01	SHEET (A), PROTECTION
3-701-613-00	BAG, POLYETHYLENE
3-760-061-11	(AEP)...MANUAL, INSTRUCTION
3-760-061-21	(US)....MANUAL, INSTRUCTION
3-794-669-11	INSTRUCTION, CAUTION
X-3310-601-1	SCREW ASSY, FITTING

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